

CLAIMS

We claim:

- 1 1. A method for designing, deploying or optimizing a communications
2 network, comprising the steps of:
3 providing a computerized model which represents a physical
4 environment in which a communications network is or will be installed,
5 said computerized model providing a display of at least a portion of said
6 physical environment;
7 providing performance attributes for a plurality of system
8 components which may be used in said physical environment;
9 selecting specific components from said plurality of system
10 components for use in said computerized model;
11 representing said selected specific components in said display;
12 selecting specific points within said display where performance
13 data is desired;
14 running prediction models using the computerized model and said
15 performance attributes to predict performance characteristics of a
16 communications network composed of said selected specific components,
17 said prediction models providing predicted performance data for said
18 selected specific points; and
19 displaying results from said prediction models on said display at
20 said selected specific points in the form of one or more icons.
- 1 2. The method of claim 1 wherein said display is three dimensional.
- 1 3. The method of claim 1 wherein said icon is three dimensional.
- 1 4. The method of claim 1 wherein both said display and said icons are

2 three dimensional.

1 5. The method of claim 4 wherein said icon is depicted as a graphical
2 cylinder where an attribute selected from the group consisting of height,
3 radius, brightness, color, hue, saturation, line type and width, transparency,
4 and surface texture varies depending on the performance data.

1 6. The method of claim 4 wherein said icon has an attribute selected from
2 the group consisting of height, radius, brightness, color, hue, saturation,
3 line type and width, transparency, and surface texture varies depending on
4 the performance data.

1 7. An apparatus for designing, deploying or optimizing a communications
2 network, comprising:

3 a means for providing a computerized model which represents a
4 physical environment in which a communications network is or will be
5 installed, said computerized model providing a display of at least a portion
6 of said physical environment;

7 a means for providing performance attributes for a plurality of
8 system components which may be used in said physical environment;

9 a means for selecting specific components from said plurality of
10 system components for use in said computerized model;

11 a means for representing said selected specific components in said
12 display;

13 a means for selecting specific points within said display where
14 performance data is desired;

15 a means for running prediction models using the computerized
16 model and said performance attributes to predict performance
17 characteristics of a communications network composed of said selected
18 specific components, said prediction models providing predicted

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19 performance data for said selected specific points; and
20 a means for displaying results from said prediction models on said
21 display at said selected specific points in the form of one or more icons.

1 8. The apparatus of claim 7 wherein said display is three dimensional.

1 9. The apparatus of claim 7 wherein said icon is three dimensional.

1 10. The apparatus of claim 7 wherein both said display and said icon is
2 three dimensional.

1 11. The apparatus of claim 10 wherein said icon is depicted as a graphical
2 cylinder where an attribute selected from the group consisting of height,
3 radius, brightness, color, hue, saturation, line type and width, transparency,
4 and surface texture varies depending on the performance data.

1 12. The apparatus of claim 10 wherein said icon has an attribute selected
2 from the group consisting of height, radius, brightness, color, hue,
3 saturation, line type and width, transparency, and surface texture varies
4 depending on the performance data.

1 13. A method for designing, deploying or optimizing a communications
2 network, comprising the steps of:

3 providing a computerized model which represents a physical
4 environment in which a communications network is or will be installed,
5 said computerized model providing a display of at least a portion of said
6 physical environment;

7 providing performance attributes for a plurality of system
8 components which may be used in said physical environment;
9 selecting specific components from said plurality of system

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10 components for use in said computerized model;
11 representing said selected specific components in said display;
12 selecting specific points within said display where performance
13 data is desired;
14 running prediction models using the computerized model and said
15 performance attributes to predict performance characteristics of a
16 communications network composed of said selected specific components,
17 said prediction models providing predicted performance data for said
18 selected specific points;
19 measuring actual performance data for said physical environment;
20 and
21 comparing said actual performance data to said predicted
22 performance data.

1 14. The method of claim 13 further comprising the step of displaying a
2 comparative result from said comparing step as an icon on said display.

1 15. The method of claim 14 wherein said icon and said display are three
2 dimensional.

1 16. The method of claim 15 wherein said icon is depicted as a graphical
2 cylinder where an attribute selected from the group consisting of height,
3 radius, brightness, color, hue, saturation, line type and width, transparency,
4 and surface texture varies depending on the performance data.

1 17. The method of claim 15 said icon has an attribute selected from the
2 group consisting of height, radius, brightness, color, hue, saturation, line
3 type and width, transparency, and surface texture varies depending on the
4 performance data.

1 18. A method for designing, deploying or optimizing a communications
 2 network, comprising the steps of:
 3 providing a computerized model which represents a physical
 4 environment in which a communications network is or will be installed,
 5 said computerized model providing a display of at least a portion of said
 6 physical environment;
 7 providing performance attributes for a plurality of system
 8 components which may be used in said physical environment;
 9 selecting specific components from said plurality of system
 10 components for use in said computerized model;
 11 representing said selected specific components in said display;
 12 selecting specific points within said display where performance
 13 data is desired;
 14 running at least two different prediction models using the
 15 computerized model and said performance attributes to predict
 16 performance characteristics of a communications network composed of
 17 said selected specific components, said prediction models providing at
 18 least two predicted performance data for said selected specific points; and
 19 comparing said at least two predicted performance data.

1 19. The method of claim 18 further comprising the step of displaying a
 2 comparative result from said comparing step as an icon on said display.

1 20. The method of claim 19 wherein said icon and said display are three
 2 dimensional.

1 21. The method of claim 20 wherein said icon is depicted as a graphical
 2 cylinder where an attribute selected from the group consisting of height,
 3 radius, brightness, color, hue, saturation, line type and width, transparency,
 4 and surface texture varies depending on the performance data.

1 22. The method of claim 20 wherein said icon has an attribute selected
2 from the group consisting of height, radius, brightness, color, hue,
3 saturation, line type and width, transparency, and surface texture varies
4 depending on the performance data.

1 23. A method for designing, deploying or optimizing a communications
2 network, comprising the steps of:

3 providing a computerized model which represents a physical
4 environment in which a communications network is or will be installed,
5 said computerized model providing a display of at least a portion of said
6 physical environment;

7 providing performance attributes for a plurality of system
8 components which may be used in said physical environment;

9 selecting specific components from said plurality of system
10 components for use in said computerized model;

11 representing said selected specific components in said display;

12 selecting specific points within said display where performance
13 data is desired;

14 running at least one predictive model using the computerized
15 model and said performance attributes to predict performance
16 characteristics of a communications network composed of said selected
17 specific components, said step of running being performed at least two
18 times where performance parameters in said predictive model have
19 changed between said at least two times so as to provide at least two
20 predicted performance data for said selected specific points; and
21 comparing said at least two predicted performance data.

1 24. The method of claim 23 further comprising the step of displaying a
2 comparative result from said comparing step as an icon on said display.

1 25. The method of claim 24 wherein said icon and said display are three
2 dimensional.

1 26. The method of claim 25 wherein said icon is depicted as a graphical
2 cylinder where an attribute selected from the group consisting of height,
3 radius, brightness, color, hue, saturation, line type and width, transparency,
4 and surface texture varies depending on the performance data.

1 27. The method of claim 25 wherein said icon has an attribute selected
2 from the group consisting of height, radius, brightness, color, hue,
3 saturation, line type and width, transparency, and surface texture varies
4 depending on the performance data.

1 28. A method for designing, deploying or optimizing a communications
2 network, comprising the steps of:

3 providing a computerized model which represents a physical
4 environment in which a communications network is or will be installed,
5 said computerized model providing a display of at least a portion of said
6 physical environment;

7 providing performance attributes for a plurality of system
8 components which may be used in said physical environment;

9 selecting specific components from said plurality of system
10 components for use in said computerized model;

11 representing said selected specific components in said display;

12 selecting specific points within said display where performance
13 data is desired;

14 measuring actual performance data for said physical environment
15 which correspond to said specific points, said measuring step being
16 performed using different measurement devices, or being performed at

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17 different time periods such that at least two sets of measurement data are
18 obtained; and
19 comparing said at least two sets of measurement data.

1 29. The method of claim 28 further comprising the step of displaying a
2 comparative result from said comparison step as an icon on said display.

1 30. The method of claim 29 wherein said icon and said display are three
2 dimensional.

1 31. The method of claim 30 wherein said icon is depicted as a graphical
2 cylinder where an attribute selected from the group consisting of height,
3 radius, brightness, color, hue, saturation, line type and width, transparency,
4 and surface texture varies depending on the performance data.

1 32. The method of claim 30 wherein said icon has an attribute selected
2 from the group consisting of height, radius, brightness, color, hue,
3 saturation, line type and width, transparency, and surface texture varies
4 depending on the performance data.

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